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EXAMINER	
WON, MICHAEL YOUNG	

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 09/755,479	**Applicant(s)** LEE, WHAY S.	
	Examiner Michael Y. Won	**Art Unit** 2155	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 24 October 2005 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

   The status of the claim(s) is (or will be) as follows:

   Claim(s) allowed: None.

   Claim(s) objected to: None.

   Claim(s) rejected: *1-6,9-22,24-29,32-41,44-63,65,66,68 and 70*.

   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Attached Document.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____
13. ☐ Other: _____.

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER

Response to Arguments

1. In response to the argument regarding claims 1, 22, and 39, the applicant(s) argue that the reference *Annapareddy* et al. (US 5,602,839 A) does not teach the claimed limitation "*wherein each segment comprises a direction component and a distance component*", it is noted that the features upon which applicant relies (i.e., "direction to take on the route from the source node to the destination node" (although explicitly taught: see below), "distance to take in a specified direction", and "relative direction") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore the applicant(s) asserts that based on the Background of the Invention by *Annapareddy*, specifically column 2, lines 6-30, that *Annapareddy* teaches away from the claimed invention. The examiner earnestly disagrees. The cited location teaches merely the shortfalls of traditional systems of "wormhole routing techniques". Nowhere in column 2, lines 6-30, does *Annapareddy* explicitly recites that his invention does not employ **any** teachings of prior art such as employing routing messages in X and Y directions. Furthermore, nowhere does it state that "Address-delta routing techniques" are the only routing technique that employs routing messages in the X and Y directions. In other words, such recitation does not teach away from the claimed

invention as asserted by the applicant(s), but rather teaches an objective of overcoming the shortfalls of prior art systems.

Annapareddy clearly teaches the limitation of comprising "*a direction component*". In column 6, lines 12-21, *Annapareddy* teaches of "a destination address field 210" that comprises a "group address field" and a "local address field" of which the "group address 212 is used to route a message from a node of a source group (source group comprises the source node) to a destination group (destination group comprises the destination node)". Clearly an address (group address 212) employed to route messages from a source node to a destination node teaches the limitation of a *direction component*. Furthermore, column 3, lines 1-6, teaches of routing tables employed for determining direction for a given message.

Annapareddy clearly teaches the limitation of comprising "*a distance component*". In column 3, lines 20-22 and similarly lines 27-30, *Annapareddy* teaches in reference to the routing table mentioned above "the message delivery directions in each entry are further ordered by the *relative distance* between the local node identified by that entry and node n".

2. For the reasons above claim 18 remain rejected.

3. Regarding claims 21, 38 and 42, the applicant(s) argue that the *Annapareddy* does not teach the claimed limitation "*wherein the storage device comprises a disk drive*". Clearly a disk drive is a semiconductor memory. Annapareddy teaches in

column 5, lines 63-65 that "memory 120" is "preferably a semiconductor memory... or the like". A storage device that is a disk drive is neither novel nor the inventive feature of the claimed invention.

4. Regarding claim 24, the applicant(s) argue that the *Annapareddy* does not teach the claimed limitation "*wherein the device is configured to select a route, encode a routing directive in the message and communicate a message to the node*". The reference location was cited to teach the communication between the device and the node. Clearly throughout the patent, *Annapareddy* describes the substance of the communication. In column 6, lines 9-27, *Annapareddy* teaches of message containing header (encoded with routing directives as explained above regarding claim 1 arguments). In column 6, lines 28-34, *Annapareddy* teaches where a determination is made by comparing the message with the table located at each receiving device. In column 7, lines 61-65, *Annapareddy* teaches of selecting a delivery route. In combination with all these teachings, *Annapareddy* explicitly teaches the recited limitations of claim 24.

5. In response to applicant's argument of claims 2, 5, and 26, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, *Annapareddy* teaches of a directional and distance component as explained above, therefore, sufficient motivation exists to combine the teachings of *Nugent* (US 5,175,733 A) within the system of *Annapareddy*.

6. Similarly for the reasons above, sufficient motivation exists to combine the teachings of *Walker* (US 5,613,069 A) within the system of *Annapareddy* with respect to claims 10 and 33.

7. In response to applicant's argument of claims 6, 17, and 29, ports are inherent based on I/O channels taught.

8. Regarding claims 53, 56, and 59, the applicant(s) argue that the *Flaig* (US 5,105,424 A) and *Walker* fails to teach or suggest "*identifying a return route from the destination node to the sending node*" and "*wherein the message includes both the routing directive and the return routing directive when sent from the initial sending node*". It is inherent that a "return routing directive" is present since Walker teaches in column 5, lines 21-25 "a packet trailer, which is automatically generated, records the return route to the packet originator at each stage through the network. The directive can be any data that is intended to direct or guide the direction of travel. In other words the directive is not equated to "routing header" or "routing trailer". Therefore, regardless

of whether the routing trailer is null is irrelevant so long as there is some data in the message from the sending node that is able to generate a packet trailer, which in this case is inherent, since otherwise, on the return path the message will only reach the node just before the originating node.

9. Regarding claim 68, the applicant(s) argue that the *Flaig* (US 5,105,424 A) and *Walker* fails to teach or suggest "*incrementally encode a return routing directive describing a return route from the destination node to the source node in the message, wherein the return routing directive describes a return route from the destination node to the sending node and comprises at least one segment, and wherein each segment comprises a direction component and a distance component*". In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The direction component and the distance component are taught by the primary reference *Flaig*. *Walker* is relied upon to specifically teach the element of encoding a return routing directive. Regardless of the routelet-based mechanism of *Walker*, if the teaching of Walker were incorporated into *Flaig*, the mechanism to be employed would be that of *Flaig*.

Furthermore, regarding "return an error message to the source node if a routing error is encountered", the applicant(s) assertion that *Walker*'s system does "not handle

error detection and correction" is incorrect. *Walker* is referring to the Data Link Layer of the OSI model in which error detection and correction is traditionally associated with. *Walker* teaches of generating a route response packet and returning it to the originator (see col.10, lines 15-21). Therefore, although *Walker* does not explicitly teach the limitation above, the combinational teachings of column 2, lines 42-44 (mandatory error detection) and column.10, lines 15-21 (generating a route response packet and returning it to the originator), clearly suggests such limitation.

10. Regarding claims 63 and 66, the applicant(s) argue that the *Flaig*, *Walker*, and *Nugent* fail to teach or suggest "*decrementing the distance component for a current segment of the routing directive*", "*wherein said incrementally encoding comprises: incrementing the distance component for a current segment of the return routing directive; wherein if, after said decrementing, the distance component for the current segment of the routing directive is zero, the method further comprises modifying the direction component of a current segment of the return routing directive and adding a new segment to the return routing directive so that the new segment becomes the current segment of the return routing directive when the message is sent on the selected output port*".

In response to the "*incrementing the distance component for a current segment of the return routing directive*" of the amended claim language, *Walker* is relied upon to teach this limitation. *Nugent* is relied upon to teach the last recited element of

decrementing and not incrementing as argued. Therefore, similarly with respect to claim 2 and 3 rejection, the last element of claims 63 is rejected accordingly.

Claims 63 has been re-established to correct any typographical mistakes:

As per ***claim 63***, Flaig teaches a method of sending a message in an interconnection fabric, wherein the interconnection fabric couples together a plurality of nodes, wherein each node of the plurality of nodes comprises a plurality of input ports and a plurality of output ports (see abstract and col.1, lines 46-61), comprising:

identifying a route in the interconnection fabric for sending the message from a sending node to a destination node (see col.1, lines 50-61);

encoding (see col.6, lines 14-15) a routing directive in the message, wherein the routing directive describes the route and comprises at least one segment, wherein each segment comprises a direction component (see col.4, lines 55-57) and a distance component (see col.7, lines 27-33 & 41-48);

sending the message on one of the output ports of the sending node (see col.4, lines 57-60 and col.7, lines 12-16);

receiving the message on one of the input ports of a first node connected to the output port of the sending node (inherent);

decrementing the distance component for a current segment of the routing directive (see col.7, lines 50-52);

selecting one of the output ports of the first node according to the current segment of the routing directive in the message (see Figs.4-6; col.6, lines 55-57; and col.7, lines 19-27); and

sending the message on the selected one of the output ports of the first node (see col.4, lines 57-60 and col.7, line 68 to col.8, line 2).

Flaig does not explicitly teach of incrementally encoding a return routing directive in the message, wherein the return routing directive describes a return route from the destination node to the sending node and comprises at least one segment, and wherein each segment comprises a direction component

and a distance component; wherein said incrementally encoding comprises: incrementing the distance component for a current segment of the return routing directive.

Walker teach of incrementally encoding a return routing directive in the message, wherein the return routing directive describes a return route from the destination node to the sending node and comprises at least one segment, and wherein each segment comprises a direction component and a distance component; wherein said incrementally encoding comprises: incrementing the distance component for a current segment of the return routing directive (see claim 53 rejection above).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teachings of Walker within the system of Flaig by implementing incrementally encoding a return routing directive in the message, wherein the return routing directive describes a return route from the destination node to the sending node and comprises at least one segment, and wherein each segment comprises a direction component and a distance component; wherein said incrementally encoding comprises: incrementing the distance component for a current segment of the return routing directive within the method of sending a message in an interconnection fabric because such implementation allows the destination node to return messages back to the source node. Messages such as an acknowledgement message taught by Flaig (see col.4, lines 2-5 and col.9, lines 57-66).

Flaig does not explicitly teach wherein if, after said decrementing, the distance component for the current segment of the routing directive is zero, the method further comprises modifying the direction component of a current segment of the return routing directive and adding a new segment to the return routing directive so that the new segment becomes the current segment of the return routing directive when the message is sent on the selected output port.

Nugent teaches of if, after said decrementing, the distance component for the current segment of the routing directive is zero, the method further comprises modifying the direction component of a current segment of the return routing directive and adding a new segment to the return routing directive so that the new segment becomes the current segment of the return routing directive when the message is sent on the selected output port (see claim 2 and 3 rejections above).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teachings of Nugent within the system of Flaig by implementing modifying the direction component of the current segment adding the new segment as the current segment when the distance component for the current segment is zero within method of sending a message in an interconnection fabric because by decrementing the directional component to zero allows directional limits to be set thereby triggering a change in directions such as from X-direction to Y or Z-direction.

11. Regarding claim 65, the applicant(s) argue that the *Flaig*, *Walker*, and *Nugent* fail to teach or suggest "*wherein the return routing directive further comprises a pointer to the current segment wherein adding a new segment to the return routing directive comprises moving the pointer to the new segment*". Flaig teaches of pointers. Walker teaches the return routing directive or adding a new segment to a return routing directive. The combinational teachings clearly suggest the claim limitation. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

12. Regarding claim 71, the applicant(s) argue that the *Flaig* and *Brantley* fail to teach or suggest "*a storage system, comprising a plurality of nodes*", "*wherein different ones of said plurality of nodes perform different functions in the storage system; wherein each one of a first portion of said plurality of nodes is a storage node comprising at least one mass storage device; and wherein each one of a second portion of said plurality of nodes is a host interface node configured to provide an interface for the storage system*

to a host computer". It is noted that Brantley does not explicitly recite that the plurality of nodes are identical. Furthermore, the cited reference location does not explicitly teach that the functions are identical. Although with respect to the claim limitation Brantley teaches the limitation of reciting the functionality of each one of the first portion and the second portion, the limitation "wherein different ones of said plurality of nodes perform different functions in the storage system" does not specifically point out and distinctly claim the subject matter that the applicant(s) regards as their invention and therefore not given patentable weight. The allocation of functions are subjective and will not patentable distinguish the invention.

13. For the reasons above all pending claims remain rejected.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Won

November 4, 2005

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER